CONSUMER CONFIDENCE REPORT (CCR)

1 Jan 22 – 31 Dec 22
Aviano Air Base, Italy

Introduction

This is the annual report on the quality of drinking water delivered by Aviano Air Base (AB). Under the "Consumer Confidence Reporting Rule" of the Federal Safe Drinking Water Act, community water systems are required to report this water quality information to the consuming public. This report presents information on the source of our water, its chemical/biological makeup, and the health risks associated with any contaminants. It also contains extensive technical language required by the Environmental Protection Agency (EPA), which is designed to further public understanding about public water systems and potential hazards across the country. Air Force Instruction, 48-144, *Drinking Water Surveillance Program*, requires overseas installations to also prepare a water quality report that can be modeled after the CCR. This year's report covers results from drinking water surveillance conducted during calendar year 2022.

Sources of drinking water include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, naturally occurring radioactive minerals, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. (B) Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses. (D) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, can come from gas stations, urban storm water runoff, and septic systems. (E) Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

In order to ensure tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. In addition, Italian Final Governing Standards (IFGS) prescribe limits on contaminants, some of which may be more stringent than those set by the EPA. At Aviano AB, we are required to analyze for and meet the most stringent requirements of both the EPA and the IFGS. The Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791) or by visiting the following website http://www.epa.gov/safewater/index.html.

We continually monitor the drinking water for contaminants of concern. Our water is safe to drink. However, as with any water supply, some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants

can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

Where does my on-base water come from?

Aviano AB's drinking water in 2022 was supplied through six groundwater wells: Wells 1, 2, 3, 4, Z2, and Z3. These six wells provided all the water for Aviano AB Areas A1/A2, C, D, E, F, and G. Groundwater, not under the influence of surface water, is the primary source of water for each well system.

What should I know about certain contaminants?

Nitrate

Although the level of nitrate is below the health effect level (as shown in Table 1), the EPA requires the following information be included in this report: "Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time, because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider."

What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industrial and consumer products around the globe, including in the U.S. and Italy, for decades. Due to their widespread use and environmental persistence, most people in the United States have been exposed to some level of PFAS. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams (aqueous film-forming foam or AFFF) used for fighting petroleum fires.

Is there a federal regulation for PFAS in drinking water?

There is currently no federal drinking water standard for any PFAS compounds. In May 2016, the U.S. Environmental Protection Agency (EPA) established a lifetime drinking water health advisory (HA) level at 70 parts per trillion (ppt) for individual or combined concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Both chemicals are types of PFAS.

The Department of Defense (DoD) issued a policy in 2020 to monitor drinking water for PFAS at all DoD owned and operated water systems at a minimum of every three years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA HA level of 70 ppt, water systems would 1) take immediate action to reduce exposure to PFOS or PFOA, to include providing alternative drinking water; and 2) undertake additional sampling to assess the level, scope, and localized source of contamination.

What about the EPA's 2022 interim Health Advisories or proposed regulations?

EPA issued interim Health Advisories for PFOS and PFOA in 2022. However, these newer levels are below quantifiable limits (i.e., below detection levels). EPA announced a proposed regulation on PFAS drinking water standards for public comment on March 14, 2023. The Department supports EPA taking regulatory actions to address PFAS, including a drinking water standard for PFAS that will apply to all drinking water suppliers once final. DoD respects and values the public comment process on this proposed nationwide drinking water rule and looks forward to the clarity that a final regulatory drinking water standard for PFAS will provide.

In anticipation of this EPA drinking water regulation and to account for emerging science that shows potential health effects of PFOS and PFOA at levels lower than 70 ppt, DoD is evaluating its efforts to address PFAS in drinking water, and what actions we can take to be prepared to incorporate this standard, such as reviewing our current data and collecting additional sampling where necessary. DoD remains committed to communicating and engaging with our communities throughout this process.

Has Aviano Air Base tested its water for PFAS?
Yes. In October 2020, samples were collected from our 6 wells on Aviano AB.

Water testing results were below the Method Reporting Limit (MRL) for all 18 PFAS compounds covered by the sampling method, including PFOA and PFOS. This means that PFAS were not detected in your water system. In accordance with DoD policy, the water system will be resampled every three years for your continued protection.

What is being done to ensure our water continues to meet standards?

Water Treatment
The use of chlorine/ultra-violet (UV) to disinfect the water and use of granular activated carbon (GAC) to filter the water ensures our water is potable and meets the standards. The water from all on-base wells is disinfected with chlorine at the well head before being distributed to the respective base areas. Water from Well 1 (Areas A1/A2) is also treated by a UV disinfection system. Well 2 (Areas F/G) has three GAC treatment towers. Well 1 (Areas A1/A2), Well 3 (Areas D/E), Well Z2 (Areas F/G), and Well Z3 (Areas F/G) each have two GAC treatment towers. Sampling results indicate these treatment processes are functioning properly.

Public Participation
Personnel can contact Bioenvironmental Engineering (BE) directly for drinking water quality information.

Questions
This CCR was prepared by the BE office. Public queries and additional information can be obtained by contacting the Aviano Public Affairs (31 FW/PA) at 632-7555 or BE (31 OMRS/SGXB) at Commercial: 0434-30-5532 or DSN: 632-5532.

Monitoring Our Drinking Water

Aviano AB's drinking water is managed by two base agencies. The 31st Civil Engineering Squadron Water and Fuels System Maintenance section maintains and operates the drinking water supply and distribution system. The 31st Operational Medical Readiness Squadron BE Flight monitors the quality of the drinking water provided to on-base consumers and addresses any health-related concerns.

At Aviano AB, BE monitors the contaminant groups listed in the following table, using certified laboratories and accredited methods. The table below specifies the monitoring frequency for contaminant groups of interest. To ensure your drinking water is of the highest quality, BE monitors for microbiological contaminants, lead and copper, inorganic contaminants, synthetic organic contaminants, volatile organic compounds, radionuclides, asbestos, and total trihalomethanes.

Analyte Groups and Monitoring Frequency Table

Analyte/Contaminant Group	Monitoring Frequency
Microbiological Contaminants	Monthly
Lead	Triennially
Copper	Triennially
Inorganic Contaminants	Annually[1]
Pesticides	Triennially
Volatile Organic Compounds	Annually
Radionuclides (Gross Alpha Activity)	Sampled for four consecutive quarters every 4 years
Asbestos	Once every 9 years
Total Trihalomethanes	Annually
Nitrate	Quarterly
Note:	
1. Ammonium/Ammonia is sampled quarterly	

Compliance with the National Primary Drinking Water Regulations

The contaminants presented in the Results Table below are those that were found in concentrations greater than the laboratory minimum detection limit. The monitoring results include the highest detected level along with the range of detected values. The tables also show the maximum contaminant level (MCL) and/or action level (AL) as published in the IFGS.

Note: Aviano AB monitors for dozens of additional regulated contaminants; however, this report only cites contaminants that were detected in the water. For information on the full suite of chemicals analyzed, contact BE.

Results Table - Detected Contaminants

Contaminant	IFGS MCL	EPA MCL	EPA MCLG	Highest Level	Violation	Typical Sources
Barium mg/L	2	2	2	0.02	NO	Discharge of drilling wastes/discharge from metal refineries/erosion of natural deposits
Beryllium mg/L	0.004	0.004	0.004	< 0.001	NO	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
Thallium mg/L	0.002	0.002	0.0005	< 0.002	NO	Leaching from ore processing sites; Discharge from electronics, glass, and drug factories
Copper mg/L	1	1.3	1.3	0.021	NO	Erosion of natural deposits/leaching from wood preservatives
Dry Residues mg/L	1,500	N/A	N/A	326	NO	varies
Lead mg/L	0.01	0.015	0.015	0.004	NO	Corrosion of plumbing systems/erosion of natural deposits
Nitrate mg/L	44.3 mg/L (as NO_3) 10 mg/L (as N)	10	10	18.2 (as NO_3)	NO	Runoff from fertilizer/leaching from septic tanks, sewage/erosion of natural deposits
Sodium mg/L	200	N/A	N/A	1.5	NO	Erosion of natural deposits
Total Hardness 29 °F	15-50 °F (French Degree) 150-500 mg/L	N/A	N/A	29 °F	NO	Erosion of natural deposits
Total Coliforms[1]	1 positive sample/month	N/A	N/A	12	YES	Naturally present in the environment
Total Trihalomethanes (TTHM)[2] 29 °F	0.03	0.08	N/A	0.0237	NO	Byproduct of drinking water disinfection
Beta particle radiation mrem/yr	4	4	N/A	<4	NO	Decay of natural and man-made deposits

Notes:

1. Total Coliforms: These violations all occurred during the week-long boil water notices in August 2022 and was a result of equipment failure after storm damage. No samples taken outside that period have had coliform bacteria detected.
2. TTHM “highest level” is based on annual average by EPA guidance.

Additional Acronyms/Terms/Concepts/Definitions Used In This Report

Below is a listing of acronyms and terms used in this Consumer Confidence Report:

AL	Action Level
CCR	Consumer Confidence Report
CU	Color Units
DoD produced water	Any water used for drinking where the raw water is extracted by DoD
EPA	Environmental Protection Agency
GAC	Granular Activated Carbon
IFGS	Italian Final Governing Standards, a compilation of US EPA and Italian/European Union environmental standards
MCLG	Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. Values are published in Chapter 3 of the Final Governing Standards-Italy.
MDL	Minimum Detection Limit. This is the lowest concentration of a contaminant that an analytical method is able to detect in a water sample.
mg/L	Milligrams per liter; a unit of measure equivalent to parts per million (ppm)
mrem/yr	Millirem per year; the annual acceptable exposure limit to radioactivity in drinking water
NTU	Nephelometric Turbidity Unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
NOD	No Odor Detected
ppm	parts per million; a unit of measure equivalent to a single penny in $10,000
Range	The range of the highest and lowest analytical values of a reported contaminant. For example, the range of reported analytical detections for an unregulated contaminant may be 10.1 mg/L (lowest value) to 13.4 mg/L (highest value). EPA requires this range to be reported.
TON	Threshold Odor Number
90th Percentile Rule	The 90th percentile rule is a mathematical calculation that determines what sample value represents the 90th percentile. For example, 10 samples are collected, the highest sample value would be thrown out and the next highest would represent the 90th percentile. This 90th percentile is then compared to the AL to evaluate the distribution system materials.